Model Paper

PHYSICS (New)

Inter Part – I

(Fresh/Reappear)

Note: Time allowed for Section – B and Section – C is 2 Hours and 40 minutes.

Section – B

Marks: 40

Q-II Attempt any TEN parts. Each part carries FOUR marks.

1. Show that E = hf is dimensionally correct.
2. Explain parallel, antiparallel, perpendicular and null vectors.
3. Show that the cross product of two vectors do not obey commutative property.
4. Explain dimensional and dimension less constants by giving two examples of each.
5. How can we reduce the glares of reflected light from the smooth surfaces of roads?
6. When a driver apply his brake suddenly then why the upper part of the passenger gets jerk or move in forward direction?
7. What will be the value of escape velocity on a planet whose radius and acceleration due to gravity is half of the earth?
8. What is viscosity of a fluid? On what factors does it depend?
9. Differentiate between real and apparent weight of a body.
10. What will be the time period of a simple pendulum at the center of earth?
11. Does pressure affect the speed of sound in air? If not why?
12. Why do not we keep bananas in a refrigerator?
13. How would you justify that light is a form of waves and also transverse in nature?

Section – C

Marks: 27

Note : Attempt any THREE questions. All questions carry equal marks.

Q-III (a) Define scalar and vector products and list at least three properties of scalar product.

(b) What should be the orbital speed to launch a satellite in a circular orbit 1000 km above the surface of the earth?

Q-IV (a) Define Projectile Motion and obtain an expression for total time of flight (T_f) of projectile.

(b) Calculate the angle of projection for which K.E at highest point of its trajectory is equal to half of its K.E at the point of projection.

Q-V (a) State and prove Bernoulli's equation for ideal fluid flow.

(b) A mass of 1.5 kg is suspended from a spring. The spring is stretched by 9.8cm. Calculate the spring constant.

Q-VI Define and explain any two of the following.

(i) Polarization of light
(ii) Standing or stationary waves.
(iii) Heat engine.